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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **ALBUMIN FUSION PROTEINS**

(57) Abstract: The present invention encompasses albumin fusion proteins. Nucleic acid molecules encoding the albumin fusion proteins of the invention are also encompassed by the invention, as are vectors containing these nucleic acids, host cells transformed with these nucleic acids vectors, and methods of making the albumin fusion proteins of the invention and using these nucleic acids, vectors, and/or host cells. Additionally the present invention encompasses pharmaceutical compositions comprising albumin fusion proteins and methods of treating or preventing diseases, disorders or conditions related to diabetes mellitus using albumin fusion proteins of the invention.



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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/40892

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07K 14/00  
US CL : 530/350

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 530/350

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
none

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EAST, Dialog, Sequence Search

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	YU et al. A newly identified member of tumor necrosis factor receptor superfamily (TR6) suppresses LIGHT-mediated apoptosis. Journal of Biological Chemistry. 14 May 1999, Vol. 274, No. 20, pages 13733-13736.	1-21
A	US 5,876,969 A (FLEER et al.) 02 March 1999 (02.03.99).	1-21

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/40892

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claim Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:  
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-21, drawn to fusion protein #1, SEQ ID NO: 70

Remark on Protest

☐  
☐

- The additional search fees were accompanied by the applicant's protest.  
No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

PCT/US02/40892

### BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Groups 1-161, claim(s) 1-21, drawn to albumen fusion proteins NO: 1 to NO: 161, respectively, from Table 2.

Group 162-322, claim(s) 22, drawn to method of treating disease via administration of albumen fusion proteins NO: 1 to NO: 161, respectively, from Table 2.

Group 323-483, claim(s) 23, drawn to method of treating metabolic disorders via administration of albumen fusion proteins NO: 1 to NO: 161, respectively, from Table 2.

Group 484-644, claim(s) 24-33 and 35, drawn to method of treating diabetes via administration of albumen fusion proteins NO: 1 to NO: 161, respectively, from Table 2.

Group 645-805, claim(s) 34 and 36, drawn to method of treating obesity via administration of albumen fusion proteins NO: 1 to NO: 161, respectively, from Table 2.

Group 806-966, claim(s) 37, drawn to method of extending the shelf life of albumen fusion proteins NO: 1 to NO: 161, respectively, from Table 2.

Group 967-1127, claim(s) 38-40, drawn to nucleic acid encoding albumen fusion proteins NO: 1 to NO: 161, respectively, from Table 2.

The inventions listed as Groups 1-1127 do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the albumen fusion proteins NO:1 differs in structure and function from albumen fusion proteins NO: 2-NO:161 because the attached therapeutic protein is different for each fusion protein as set forth in Table 2. Further, the fusion proteins comprising an amino acid from therapeutic protein X and an amino acid from albumen reads on any peptide sequence and therefore the claimed fusion protein is not novel and does not represent a special technical feature. See, for example, Habermann et al. (US Patent 5,496,924) who teach fusion proteins comprising an Asp-Pro linker, wherein Asp and Pro are considered to be fragments of therapeutic protein X and albumen. Therefore, the groups do not relate to a single general inventive concept.